REMARKS

In this response, several claims are cancelled (without prejudice), and as a result claims depending therefrom are amended to prevent dependency from a cancelled claim. Furthermore, it was noted that two different spellings for the same term, "mould" and "mold", were used in the claims. Accordingly, certain claims are amended herein to make the spellings consistent throughout the claims.

§112 Rejections

In view of the amendments to the claims, the Examiner is requested to withdraw the §112 rejections.

§103 Rejections

1. Claims 1-4, 6-12, 16-21, and 24-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bleys ('226) or Eling et al. ('483), each in view of Payne et al. ('310) and Wesala ('607, as it pertains to claim 24).

In view of the amendment to claim 1 and remarks below, reconsideration and withdrawal of this ground of rejection is requested.

Amended claim 1 is directed toward a process for preparing a flexible polyurethane foam. The process comprises applying an external mould release agent onto at least those surfaces of a mould which will be in contact with ingredients used for preparing the polyurethane material and/or the finished polyurethane material. At least 25 % by weight of the ingredients used to make the polyurethane material, excluding water in this calculation, consists of a specific polyether polyol, and the apparent overall density of the polyurethane material removed from the mould is 55 to 150 kg/m^3. Generally, the ingredients used to prepare the flexible polyurethane foam (including the specific polyol) are fed into the mould and are allowed to react and to form the polyurethane material. The formed polyurethane material is removed from the mould and more ingredients are again fed into the mould to form another moulded polyurethane material. Notably, the external mould release agent is not reapplied to the mould after each cycle; it is only reapplied after at least 10 additional polyurethane materials are formed.

In the Office action, the Examiner asserts that it would be obvious to produce mouldings utilizing the disclosed foam compositions of the primary references and to utilize external mould release agents as taught by Payne et al., to obtain a more efficient method of moulding. This assertion is respectfully traversed. As is explained below, in the field of flexible foams there was

no motivation to do what the Applicants have done at least because there was no expectation of success.

At the time embodiments of the invention were made those skilled in the art of flexible foams taught that a mould *must* be coated with a mould release agent after each moulding cycle. *See* Herrington et al., Dow Polyurethanes "Flexible Foams," pgs. 5.28-5.29 and 11.1-11.8 (1997) ("Herrington"), which is attached hereto as an Appendix (because Dow is one of the most reputable companies in the world in the field of polyurethanes it is submitted that Herrington is indicative of what one having at least ordinary skill in the art of flexible polyurethane foams knew at or around the time embodiments of the invention were made. *See, e.g.,* MPEP § 2141.03 ("References which do not qualify as prior art because they postdate the claimed invention may be relied upon to show the level of ordinary skill in the art at or around the time the invention was made")). For example, Herrington teaches that mould release is extremely important to moulded foams at least because polyurethanes are excellent adhesives that would otherwise stick to bare metals and that release agents contribute to the complicated art of moulded foams. *See, e.g.,* Herrington, at p. 11.1, paragraph 4, and p. 11.2, paragraph 3. For a "typical molding operation" Herrington teaches, "a mold is preheated and waxed with a mold-release agent" and after "the part is cured, it is stripped from the mold and the process can be repeated." Herrington, p. 5.28, paragraph 2. More specifically, Herrington states that mould release agents, such as natural and synthetic waxes, "*must* be renewed after *each* molding." *See* Herrington, pg. 5.30, last paragraph (emphasis added), which was submitted on or about August 29, 2006. In fact, Herrington's examples of hot-cure and HR moulding lines both have stations for applying a mould release agent to moulds after *every* demould. *Id.*, at pgs. 5.31-5.34 (emphasis added). *See also* George Woods, The ICI Polyurethanes Book, pgs. 71-75 (1987) ("Woods"), which was submitted on or about August 29, 2006. Thus, it is respectfully submitted that one skilled in the art of moulded flexible foams would have applied a mould release agent to a mould each time the mould was used to make a flexible foam.

Additionally, artisans working with flexible foams typically used polyols with a high propylene oxide (PO) content and low ethylene oxide (EO) content to make traditional flexible foams. For example, formulations for hot-moulded foams used polyols with a light ethylene-oxide-cap (Herrington at pg. 5.28, paragraph 5, and pg. 11.3, paragraph 1) and HR foams used polyether polyols having 5-25% EO as an end cap. *See, e.g.,* Herrington at pg. 11.4, last

paragraph, pg. 11.5, first paragraph, pg. 11.6 first paragraph and Tables 11.2 and 11.3, pg. 11.8 second paragraph and Table 11.4. *See also* US55244932, US2007/0238795, and US2007/0287761, and *See* George Woods, The ICI Polyurethanes Book, pgs. 36-37 (1987), which is attached hereto in the Appendix. Thus, it is respectfully submitted that flexible foam artisan usually used polyoxypropylene polyoxyethelene polyols having about 15% wt. EO groups (which were all at the tips of the polymer chains) in the manufacture of flexible foams and not polyols with an EO content of at least 50% by weight.

In view of the above explanation, it is respectfully submitted that it would not have been obvious to one skilled in the art of flexible foams to utilize Payne's external mould release agent when making a typical flexible foam. Namely, Payne is directed toward elastomers and not flexible foams. *See e.g.,* Rule 1.132 Declaration of Dominicus Limerkens, which was submitted on or about December 22, 2006. Elastomers differ from flexible foams; elastomers are strong and have a high density. *Id.* Thus, an artisan working with typical flexible foams would not necessarily assume that Payne's elastomer release agent would have the same result in his or her flexible foam system.

Even if a skilled artisan did make this assumption Applicants have shown that the artisan would not have achieved enhanced release for typical flexible foams made with a polyol having a high-PO content. Referring to the attached declarations of VERBEKE and MOUREAU, the Applicants have shown that Payne's mould release agent does not provide good mould release for traditional flexible foams made using a polyol having a high- PO- content and having a density of 80 kg/m^3. For example, MOUREAU's Example A, which is made using a high-PO polyol, does not exhibit enhanced release when Payne's release agent is used to coat a mould. This result might have been expected as Payne discloses a very specific kind of release agent for use with elastomers, which are generally stronger than flexible foams. *See, e.g.,* column 2, line 67-column 3, line 8. If faced with MOUREAU's results for Example A, a skilled artisan could have concluded that Payne's release agent does not improve mould release for traditional flexible foams. There is no teaching or suggestion in Payne, without inappropriate hindsight reasoning and/or the benefit of Applicant's disclosure, to cause a skilled artisan in this situation to change polyols to improve mould release. There is simply no expectation of enhanced mould release using Payne's mould release agent with traditional flexible foams.

But the Applicants found that that using a high- EO- polyol does improve mould release in flexible foams. *See, e.g.,* MOUREAU's Example B. This is true despite the fact that Payne's release agent did not improve mould release of traditional flexible foams made with a high PO polyol. Because Payne's release agent does not improve mould release of traditional flexible foams it is submitted that the Examiner has not shown where the cited references suggest that using a high-EO polyol will improve mould release of flexible foams. In contrast, Applicants believe that they have demonstrated, at least in the attached Exhibits and Declarations, that it would not have been obvious to do what they have done—there was no expectation of success using Payne's specialized release agent with a traditional flexible foam—and the Applicants had unexpected results in view of traditional flexible foam chemistry and the teachings in the art such as Herrington. For at least these reasons, the Examiner is requested to withdraw this ground of rejection and allow the application to issue.

2. Claims 1-4, 6-12, 16-21, and 24, 25, and 27 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Bleys ('779) in view of Payne et al. ('310) and Wesala ('607, as it pertains to claim 24).

Under an analysis that is the same as or similar to that of the above, *§103 Rejections, section 1.*, reconsideration and withdrawal of this ground of rejection is requested.

3. Claims 1-4, 6-12, 16-21, and 26-27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bleys ('226) or Eling et al. ('483), each in view of Lopes et al ('714);

Under an analysis that is the same as or similar to that of above, *§103 Rejections, section 1.*, reconsideration and withdrawal of this ground of rejection is requested. Namely, it is believed that the Examiner has used inappropriate hindsight reasoning, using the Applicant's disclosure as a guide, to fashion an obviousness rejection. As has been explained above, at the time embodiments of the invention were made those skilled in the art of flexible foams would have typically used a high PO polyol and would have treated a mould with a mould release agent each time a flexible foam was to be made in that mould. There is simply no reason that the skilled artisan would have looked at Lopes to do what the Applicants have done.

For example, US 4681714 (Lopes) is further away from the present invention as it teaches to apply ingredients for making a coating and not to apply an external mould release agent onto the surfaces of a mould. In other words, Lopes uses a composition comprising two reactive ingredients in a non-reactive solvent, optionally together with a eatalyst. Since Lopes

does not suggest the (direct) application of external mould release agents onto the surface of the mould or suggest the use of polyurethane materials made from high amounts of polyols having a high EO content, it is submitted the claims are not obvious.

Furthermore, Lopes, at col. 6, line 50 clearly says that all of the components should be free of water. Thus, one skilled in the art might conclude that if water was present in the formulation for making the moulding, such water would be in contact with the components of the compositions used for treating the surface and this, per Lopes, should be avoided. Hence if foams are made then the teaching of Lopes is to not use water.

For at least the reasons given herein, reconsideration and withdrawal of this ground of rejection is requested.

4. Claims 1-4, 6-12, 16-21, and 27 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Bleys ('779) in view of Lopes et al ('714).

Under an analysis that is the same as or similar to that of above, *§103 Rejections, sections 1 and 3.*, reconsideration and withdrawal of this ground of rejection is requested.

Conclusion

Having made a *bona fide* attempt to address every issue raised in the Office action, the Examiner is requested to withdraw each ground of rejection and allow the application to pass to issue. Should the Examiner believe that a telephone conference would assist in the allowance of this application he is asked to contact the undersigned.

Respectfully submitted,

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